

Use Attainability Analysis

for

WBID 620 Elm Creek

Submitted by
Applied Environmental Solutions

To
Missouri Department of Natural Resources
Water Protection Program

Date Received: October 31, 2007

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A – Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): Elm Creek	
Missouri Water Body Identification (WBID) Number: 0620	
8-digit HUC: 20090415	County: Putnam
Upstream Legal Description (from Table H): Hwy 136	
Downstream Legal Description (from Table H): Mouth	
Number of sites evaluated: 3	
List all sites numbers, listed consequently upstream to downstream: 0620_01 Hwy 136 Bridge, 0620_02 100m 190 th St, 0620_03 100m downstream of site 02	

Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Facility Information (list all permitted discharges to the water body segment)

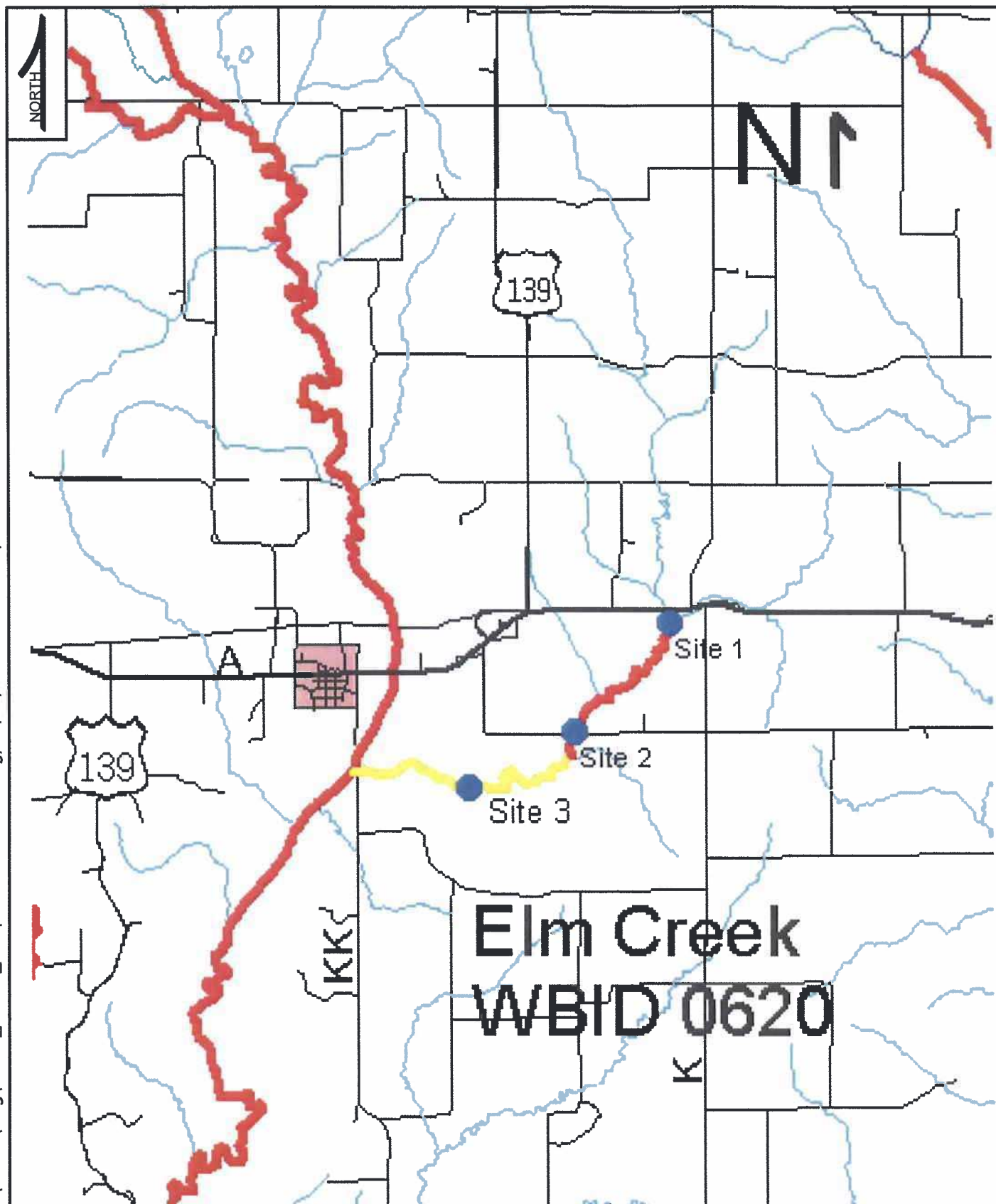
Facility Name(s) and Permit Number(s): Premium Standard Farms – MO 0118761
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III. UAA Surveyor (please print legibly)

Name of Surveyor: Renee Martin	Telephone Number: 573-875-7844
Organization/Employer: Applied Environmental Solutions	

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Signed: _____ **Date:** _____



PICKETT RAY & SILVER

Civil Engineers Land Surveyors Natural Resources

Address: 333 Mid Rivers Mall Drive
St. Peters, Missouri 63376
Phone: (636)397-1211
Fax: (636)397-1104
Website: www.prs3.com

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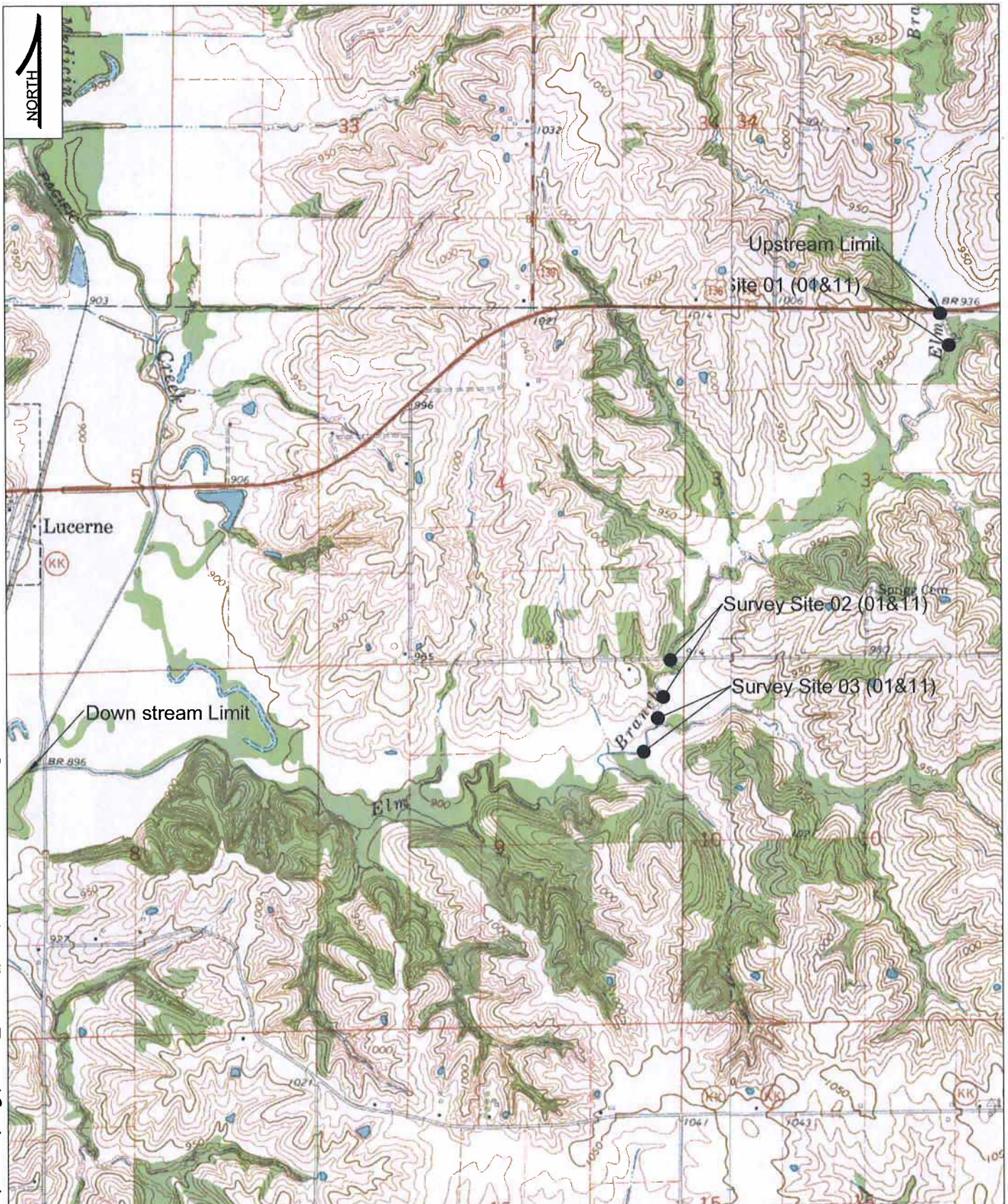
WBID #: 0620
Name: Elm Creek
County: Putnam
GIS Location Map

Sheet 1 of 1

Map provided by AES.
Please refer to USGS for exact site location indicators.

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-12-07
Checked By: JCV Date: 10-12-07

\\3serverprps\Projects\07031\dwg\07031_MODN_01E\0620 Elm Creek.dwg, 10/12/2007 1:50:29 PM, BLSTOESZ



PICKETT RAY & SILVER

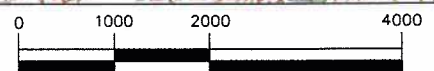
Civil Engineers Land Surveyors Natural Resources

Address: Phone: (636)397-1211
333 Mid Rivers Mall Drive Fax: (636)397-1104
St. Peters, Missouri 63376 Website: www.prs3.com

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WBID #: 0620
Name: Elm Creek
County: Putnam
USGS Location Map

Sheet 1 of 1



GRAPHIC SCALE
1 inch = 2000ft.

PRS Job Number: 07031.MODN.01E
Drawn By: BLS Date: 10-12-07
Checked By: JCV Date: 10-12-07

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization**

(must be completed for each site)

Date & Time: 9/17/07 13:40	Site Location Description (e.g., road crossing): Hwy 136 Bridge
Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	
Current Weather Conditions: clear	Facility Name: Premium Standard Farms
Weather Conditions for Past 10 days: clear/rainy	Permit Number: MO 0118761
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): 4480109	Northing (UTM Y): 0479734	Horizontal Accuracy: (EPE / FOM / PDOP)	28 feet	
Site 11	Easting (UTM X): 4479961	Northing (UTM Y): 0479770	Horizontal Accuracy: (EPE / FOM / PDOP)	26 feet	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_125	upstream	101_126	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization (continued)****Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

Substrate*: (These values should add up to 100%.)

% Cobble	1% Gravel	90% Sand	% Silt	9% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

none

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization (continued)****Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>620</u> Site #: <u>1</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>4480109</u> UTM Y: <u>0479734</u> +/- <u>28</u> (feet) 11 UTM X: <u>4479961</u> UTM Y: <u>0479770</u> +/- <u>26</u> (feet) Average Stream Width: <u>1.3</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Jennifer Hrabik and Justyn Foth</u>	Dissolved Oxygen Date: <u>9/17/2007</u> Time: <u>13:40</u> Dissolved Oxygen: <u>5.98</u> (mg/L) Dissolved Oxygen: <u>67.6</u> (% sat) Specific Cond: <u>440.2</u> (µS/cm) Water Temperature: <u>21.4</u> (°C)
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Station	Transect Cross-Section																						
	01		02		03		04		05		06		07		08		09		10		11		
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.08	0.03	0.24	0.06	0.12	0.03	0.22	0.01	0.12	0.02	0.13	0.07	0.08	0.02	0.06	0.01	0.11	0.01	0.07	0.01	0.11	0.01
	2	0.16	0.02	0.48	0.11	0.24	0.03	0.44	0.03	0.24	0.05	0.26	0.10	0.16	0.03	0.12	0.03	0.22	0.01	0.14	0.01	0.22	0.02
	3	0.24	0.02	0.72	0.17	0.36	0.06	0.66	0.32	0.36	0.05	0.39	0.11	0.24	0.06	0.18	0.03	0.33	0.01	0.21	0.02	0.33	0.03
	4	0.32	0.03	0.96	0.22	0.48	0.07	0.88	0.37	0.48	0.06	0.52	0.10	0.32	0.05	0.24	0.02	0.44	0.01	0.28	0.02	0.44	0.05
	5	0.40	0.04	1.20	0.30	0.60	0.08	1.10	0.32	0.60	0.05	0.65	0.08	0.40	0.05	0.30	0.02	0.55	0.01	0.35	0.03	0.55	0.06
	6	0.48	0.03	1.44	0.41	0.72	0.08	1.32	0.38	0.72	0.04	0.78	0.03	0.48	0.04	0.36	0.03	0.66	0.01	0.42	0.03	0.66	0.05
	7	0.56	0.02	1.68	0.51	0.84	0.09	1.54	0.36	0.84	0.04	0.91	0.01	0.56	0.04	0.42	0.02	0.77	0.01	0.49	0.03	0.77	0.06
	8	0.64	0.01	1.92	0.54	0.96	0.06	1.76	0.40	0.96	0.03	1.04	0.01	0.64	0.02	0.48	0.01	0.88	0.01	0.56	0.02	0.88	0.07
Right Bank	9	0.72	0.01	2.16	0.46	1.08	0.04	1.98	0.28	1.08	0.01	1.17	0.01	0.72	0.01	0.54	0.01	0.99	0.01	0.63	0.01	0.99	0.02
		0.80	0.00	2.40	0.20	1.25	0.00	2.20	0.00	1.20	0.00	1.30	0.00	0.85	0.00	0.65	0.00	1.10	0.00	0.75	0.00	1.10	0.00
Feature Type (riffle, run, or pool)	Run		Pool		Run		Run		Run		Run		Run		Riffle		Riffle		Run		Run		

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization**

(must be completed for each site)

Date & Time: 9/17/07 14:20	Site Location Description (e.g., road crossing): 190 th St. Bridge
Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	
Current Weather Conditions: clear	Facility Name: Premium Standard Farms
Weather Conditions for Past 10 days: clear/rainy	Permit Number: MO 0118761
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): 4478565	Northing (UTM Y): 0478506	Horizontal Accuracy: (EPE / FOM / PDOP)	14 feet	
Site 11	Easting (UTM X): 4478376	Northing (UTM Y): 0478476	Horizontal Accuracy: (EPE / FOM / PDOP)	19 feet	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_127	upstream	101_128	downstream	101_129	Livestock watering trail
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_130	Cow in stream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization (continued)****Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock Watering
Comments / Other:				

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	95% Sand	% Silt	5% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Algae
Arrowhead

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization (continued)****Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Entire site within cow pasture

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>620</u> Site #: <u>2</u> Estimated Channel Incision: <u>2.5</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>4478565</u> UTM Y: <u>0478506</u> +/- <u>14</u> (feet) 11 UTM X: <u>4478376</u> UTM Y: <u>0478476</u> +/- <u>19</u> (feet) Average Stream Width: <u>3.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Jennifer Hrabik and Justyn Foth</u>	Dissolved Oxygen Date: <u>9/17/2007</u> Time: <u>14:20</u> Dissolved Oxygen: <u>9.94</u> (mg/L) Dissolved Oxygen: <u>111.0</u> (% sat) Specific Cond: <u>427.9</u> (µS/cm) Water Temperature: <u>20.8</u> (°C)
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Station	Transect Cross-Section																					
	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.45	0.06	0.45	0.29	0.22	0.02	0.36	0.20	0.14	0.09	0.46	0.05	0.50	0.29	0.24	0.10	0.26	0.05	0.10	0.01	0.41	0.09
2	0.90	0.11	0.90	0.44	0.44	0.07	0.72	0.45	0.28	0.09	0.92	0.07	1.00	0.30	0.48	0.08	0.52	0.09	0.20	0.02	0.82	0.25
3	1.35	0.14	1.35	0.33	0.66	0.16	1.08	0.61	0.42	0.05	1.38	0.10	1.50	0.14	0.72	0.11	0.78	0.13	0.30	0.03	1.23	0.29
4	1.80	0.02	1.80	0.27	0.88	0.20	1.44	0.65	0.56	0.03	1.84	0.09	2.00	0.09	0.96	0.19	1.04	0.14	0.40	0.03	1.64	0.30
5	2.25	0.06	2.25	0.24	1.10	0.19	1.80	0.50	0.70	0.02	2.30	0.10	2.50	0.07	1.20	0.21	1.30	0.25	0.50	0.02	2.05	0.25
6	2.70	0.07	2.70	0.25	1.32	0.20	2.16	0.47	0.84	0.04	2.76	0.11	3.00	0.10	1.44	0.18	1.56	0.26	0.60	0.01	2.46	0.20
7	3.15	0.04	3.15	0.13	1.54	0.24	2.52	0.20	0.98	0.05	3.22	0.11	3.50	0.09	1.68	0.15	1.82	0.24	0.70	0.01	2.87	0.15
8	3.60	0.04	3.60	0.05	1.76	0.14	2.88	0.12	1.12	0.05	3.68	0.15	4.00	0.06	1.92	0.19	2.08	0.24	0.80	0.01	3.28	0.11
9	4.05	0.09	4.05	0.09	1.98	0.06	3.24	0.11	1.26	0.02	4.14	0.13	4.50	0.08	2.16	0.02	2.34	0.20	0.90	0.01	3.69	0.06
Right Bank	4.50	0.00	4.50	0.00	2.25	0.15	3.60	0.00	1.40	0.00	4.60	0.00	5.00	0.00	2.40	0.00	2.60	0.20	1.00	0.00	4.10	0.00
Feature Type (riffle, run, or pool)	Pool		Pool		Run		Pool		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization**

(must be completed for each site)

Date & Time: 9/17/07 14:40	Site Location Description (e.g., road crossing): 150m downstream of site 02
Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	
Current Weather Conditions: clear	Facility Name: Premium Standard Farms
Weather Conditions for Past 10 days: clear/rainy	Permit Number: MO 0118761
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): 4478300	Northing (UTM Y): 0478456	Horizontal Accuracy: (EPE / FOM / PDOP)	17 feet	
Site 11	Easting (UTM X): 4478162	Northing (UTM Y): 0478374	Horizontal Accuracy: (EPE / FOM / PDOP)	20 feet	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_131	upstream	101_132	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization (continued)****Surrounding Conditions*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use*: (Attach photos and reference in "Photos" section)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
Comments / Other: none				

Substrate*: (These values should add up to 100%.)

% Cobble	1% Gravel	95% Sand	% Silt	4% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Algae
Arrowhead

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Field Data Sheets for Recreational Use Stream Surveys**Data Sheet B – Site Characterization (continued)****Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

Entire site within cow pasture

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: _____ Date of Survey: _____

Organization: _____ Position: _____

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>620</u> Site #: <u>3</u> Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>4478300</u> UTM Y: <u>0478456</u> +/- <u>17</u> (feet) 11 UTM X: <u>4478162</u> UTM Y: <u>0478374</u> +/- <u>20</u> (feet) Average Stream Width: <u>1.0</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Jennifer Hrabik and Justyn Foth</u>																Dissolved Oxygen Date: <u>9/17/2007</u> Time: <u>14:40</u> Dissolved Oxygen: <u>11.14</u> (mg/L) Dissolved Oxygen: <u>143.0</u> (% sat) Specific Cond: <u>504.0</u> (µS/cm) Water Temperature: <u>26.9</u> (°C)						
Transect Cross-Section																						
01		02		03		04		05		06		07		08		09		10		11		
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.06	0.02	0.08	0.02	0.22	0.05	0.15	0.04	0.50	0.25	0.11	0.02	0.10	0.02	0.10	0.05	0.08	0.05	0.08	0.02	0.13	0.01
2	0.12	0.02	0.16	0.04	0.44	0.10	0.30	0.08	1.00	0.46	0.22	0.02	0.20	0.04	0.20	0.03	0.16	0.06	0.16	0.04	0.26	0.02
3	0.18	0.02	0.24	0.05	0.66	0.09	0.45	0.09	1.50	0.67	0.33	0.01	0.30	0.05	0.30	0.02	0.24	0.04	0.24	0.03	0.39	0.01
4	0.24	0.02	0.32	0.04	0.88	0.08	0.60	0.06	2.00	0.95	0.44	0.01	0.40	0.02	0.40	0.04	0.32	0.02	0.32	0.04	0.52	0.01
5	0.30	0.02	0.40	0.04	1.10	0.09	0.75	0.02	2.50	0.88	0.55	0.01	0.50	0.06	0.50	0.03	0.40	0.01	0.40	0.04	0.65	0.04
6	0.36	0.02	0.48	0.02	1.32	0.01	0.90	0.01	3.00	>1.0	0.66	0.01	0.60	0.05	0.60	0.01	0.48	0.01	0.48	0.02	0.78	0.03
7	0.42	0.02	0.56	0.01	1.54	0.01	1.05	0.02	3.50	>1.0	0.77	0.01	0.70	0.05	0.70	0.01	0.56	0.03	0.56	0.01	0.91	0.02
8	0.48	0.02	0.64	0.01	1.76	0.06	1.20	0.01	4.00	0.96	0.88	0.01	0.80	0.04	0.80	0.01	0.64	0.02	0.64	0.01	1.04	0.01
9	0.54	0.02	0.72	0.01	1.98	0.04	1.35	0.01	4.50	0.82	0.99	0.01	0.90	0.02	0.90	0.01	0.72	0.01	0.72	0.01	1.17	0.01
Right Bank	0.65	0.00	0.85	0.00	2.25	0.00	1.50	0.00	5.00	0.00	1.10	0.00	1.05	0.00	1.00	0.00	0.85	0.00	0.80	0.00	1.30	0.00
Feature Type	Run		Run		Run		Run		Pool		Riffle		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: _____ Date: _____

WBID# 0620



Site# 1 Photo ID# 101-125, Upstream



Site# 1 Photo ID# 101-126, Downstream



Site# 2 Photo ID# 101-127, Upstream



Site# 2 Photo ID# 101-128, Downstream

WBID# 0620



Site# 2 Photo ID# 101-129, Livestock watering



Site# 2 Photo ID# 101-130, Cow in stream



Site# 3 Photo ID# 101-131, Upstream



Site# 3 Photo ID# 101-132, Downstream